

IN THE CLAIMS

For the convenience of the Examiner, all pending claims of the Application are reproduced below.

1. (Currently Amended) An apparatus for communicating packets in a network environment, comprising:

a network element operable to receive a packet and to identify a sequence number included in the packet, wherein the sequence number is associated with a state of one or more adjacent network elements, and wherein the network element is operable to exchange incremental state information with the one or more adjacent network elements if the sequence number included in the packet has not already been received, whereby full neighbor state updates are transmitted when a new neighbor relationship has formed between network elements, and whereby neighboring network elements that already have full state information ignore the full neighbor state updates while those neighboring network elements that are missing state information process the updates, and whereby a state when a full update of information is transmitted is described with a state sequence and subsequent transmissions of a protocol's neighbor state information includes only the state sequence, and whereby if the network element receives two subsequent neighbor state packets from the same neighbor with different state sequences, the network element can request a neighbor state update from a sender by sending a currently known sequence number to a transmitting object.

2. (Original) The apparatus of Claim 1, wherein the network element includes a transmitter state operable to build and to communicate the packet to a selected one or more of the adjacent network elements.

3. (Canceled)

4. (Original) The apparatus of Claim 1, wherein the packet is a Hello packet that includes the sequence number in its corresponding header.

5. (Original) The apparatus of Claim 1, wherein the packet includes a fragment value operable to indicate whether the packet is a fragment to be included with other fragments in order to comprise an entire packet that includes awareness information.

6. (Original) The apparatus of Claim 1, wherein the network element includes a fragment timer operable to provide a time interval in which fragments are to be received at a selected location in a network.

7. (Original) The apparatus of Claim 1, wherein the network element is operable to query a selected one of the adjacent network elements in order to receive missing awareness information, and wherein an absence of the missing awareness information is reflected by the sequence number.

8. (Original) The apparatus of Claim 1, wherein the packet includes a checksum operable to provide an error detection function for the packet at receiving and transmission locations associated with a selected one or more of the network elements.

9. (Currently Amended) A method for communicating packets in a network environment, comprising:

receiving a packet at a network element;

identifying a sequence number included in the packet, wherein the sequence number is associated with a state of one or more adjacent network elements; and

exchanging incremental state information with the one or more adjacent network elements if the sequence number included in the packet has not already been received, whereby full neighbor state updates are transmitted when a new neighbor relationship has formed between network elements, and whereby neighboring network elements that already have full state information ignore the full neighbor state updates while those neighboring network elements that are missing state information process the updates, and whereby a state when a full update of information is transmitted is described with a state sequence and subsequent transmissions of a protocol's neighbor state information includes only the state sequence, and whereby if the network element receives two subsequent neighbor state packets from the same neighbor with different state sequences, the network element can request a neighbor state update from a sender by sending a currently known sequence number to a transmitting object.

10. (Original) The method of Claim 9, further comprising:

building and communicating the packet to a selected one or more of the adjacent network elements.

11. (Original) The method of Claim 9, wherein the packet is a Hello packet that includes the sequence number in its corresponding header.

12. (Original) The method of Claim 9, wherein the packet includes a fragment value operable to indicate whether the packet is a fragment to be included with other fragments in order to comprise an entire packet that includes awareness information.

13. (Original) The method of Claim 9, further comprising:  
providing a time interval in which fragments are to be received at a selected location in a network, wherein the fragments comprise a Hello packet that includes the awareness information.

14. (Original) The method of Claim 9, further comprising:  
querying a selected one of the adjacent network elements in order to receive missing awareness information, wherein an absence of the missing awareness information is reflected by the sequence number.

15. (Original) The method of Claim 9, further comprising:  
providing an error detection function for the packet at receiving and transmission locations associated with a selected one or more of the network elements.

16. (Currently Amended) A system for communicating packets in a network environment, comprising:

means for receiving a packet at a network element;

means for identifying a sequence number included in the packet, wherein the sequence number is associated with a state of one or more adjacent network elements; and

means for exchanging incremental state information with the one or more adjacent network elements if the sequence number included in the packet has not already been received, **whereby full neighbor state updates are transmitted when a new neighbor relationship has formed between network elements, and whereby neighboring network elements that already have full state information ignore the full neighbor state updates while those neighboring network elements that are missing state information process the updates, and whereby a state when a full update of information is transmitted is described with a state sequence and subsequent transmissions of a protocol's neighbor state information includes only the state sequence, and whereby if the network element receives two subsequent neighbor state packets from the same neighbor with different state sequences, the network element can request a neighbor state update from a sender by sending a currently known sequence number to a transmitting object..**

17. (Original) The system of Claim 16, further comprising:

means for building and communicating the packet to a selected one or more of the adjacent network elements.

18. (Original) The system of Claim 16, wherein the packet is a Hello packet that includes the sequence number in its corresponding header.

19. (Original) The system of Claim 16, wherein the packet includes a fragment value operable to indicate whether the packet is a fragment to be included with other fragments in order to comprise an entire packet that includes awareness information.

20. (Original) The system of Claim 16, further comprising:  
means for providing a time interval in which fragments are to be received at a selected location in a network, wherein the fragments comprise a Hello packet that includes the awareness information.

21. (Original) The system of Claim 16, further comprising:  
means for querying a selected one of the adjacent network elements in order to receive missing awareness information, wherein an absence of the missing awareness information is reflected by the sequence number.

22. (Original) The system of Claim 16, further comprising:  
means for providing an error detection function for the packet at receiving and transmission locations associated with a selected one or more of the network elements.

23. (Currently Amended) Software for communicating packets in a network environment, the software being embodied in a computer readable medium and comprising code such that when executed is operable to:

receive a packet at a network element;

identify a sequence number included in the packet, wherein the sequence number is associated with a state of one or more adjacent network elements; and

exchange incremental state information with the one or more adjacent network elements if the sequence number included in the packet has not already been received, whereby full neighbor state updates are transmitted when a new neighbor relationship has formed between network elements, and whereby neighboring network elements that already have full state information ignore the full neighbor state updates while those neighboring network elements that are missing state information process the updates, and whereby a state when a full update of information is transmitted is described with a state sequence and subsequent transmissions of a protocol's neighbor state information includes only the state sequence, and whereby if the network element receives two subsequent neighbor state packets from the same neighbor with different state sequences, the network element can request a neighbor state update from a sender by sending a currently known sequence number to a transmitting object.

24. (Original) The computer readable medium of Claim 23, wherein the code is further operable to:

build and communicate the packet to a selected one or more of the adjacent network elements.

25. (Original) The computer readable medium of Claim 23, wherein the packet is a Hello packet that includes the sequence number in its corresponding header.

26. (Original) The computer readable medium of Claim 23, wherein the code is further operable to:

provide a time interval in which fragments are to be received at a selected location in a network, wherein the fragments comprise a Hello packet that includes the awareness information.

27. (Original) The computer readable medium of Claim 23, wherein the code is further operable to:

query a selected one of the adjacent network elements in order to receive missing awareness information, wherein an absence of the missing awareness information is reflected by the sequence number.

28. (Original) The computer readable medium of Claim 23, wherein the code is further operable to:

provide an error detection function for the packet at receiving and transmission locations associated with a selected one or more of the network elements.

29. (Previously presented) The apparatus of Claim 1, wherein the network element is a router and the sequence number is selected from a circular number space.